REMARKS

Claims 1-5, 8-12, and 15-16 are pending. **Claims 17-23 are added to mirror claims 1-5 and 8-9 with the option of cepstrum domain transformation omitted; the USPTO admits that Tewfik fails to disclose the linear prediction domain (Office Action dated February 5, 2004, pp. 5-7).** Support for the new claims may be found in the specification as originally filed at claims 1-9. Claims 1-5, 8, 10-12, and 15-16 stand rejected under 35 U.S.C. § 102(e) as anticipated by Tewfik et al. (U.S. Pat. No. 6,442,283) (hereinafter Tewfik); claim 9 stands rejected under 35 U.S.C § 103(a) as obvious over Tewfik in view of Sharma et al. (U.S. Pat. No. 6,480,825) (hereinafter Sharma). All outstanding rejections are respectfully traversed. Claims 1 and 11 are amended. The Examiner is respectfully requested to reconsider and withdraw the outstanding rejections in view of the amendments and remarks contained herein.

REPLY TO RESPONSE TO ARGUMENTS

The Examiner remarks that Applicant's arguments fail because certain limitations are not recited in the claims. Specifically, Applicant argued that Tewfik fails to show three operations required to transform a signal to a cepstrum domain. That operational sequence is that the signal undergoes a fast Fourier transform (FFT), followed by a logarithmic operation, then an inverse FFT. The Examiner remarks that such limitations are not recited in the claims. However, the Examiner fails to accord to the term "cepstrum" the meaning of the term accepted by those skilled in the art. In other words, the three operations detailed above are inherent to transformation of a signal from a base domain to a cepstrum domain as evidenced at p. 359 of Lawrence R. Rabiner and Ronald W.

Schafer, *Digital Processing of Speech Signals*, Prentice Hal, Inc., 1978, which states in relevant part:

> The term "cepstrum" was introduced by Bogert et al. [4] and has come to be accepted terminology for the inverse Fourier transform of the logarithm of the power spectrum of a signal. The term "complex cepstrum" implies that the complex logarithm is used.

A copy of the relevant portion of the text cited above is attached hereto as an Exhibit A for the Examiner's convenience. Thus, the term "cepstrum" already inherently limits the claim to inclusion of these three sequential operations in some form; variations of individual operations, such as a complex logarithmic operation, are obviously allowed. The fact remains that Tewfik fails to teach a signal transformation to a cepstrum domain.

Applicant has amended claims 1 and 11 to recite "transforming the received audio signal to one of a linear prediction residue domain and a cepstrum domain, wherein transformation of the received audio signal to the cepstrum domain includes a fast Fourier transform, followed by a logarithmic operation, and then an inverse fast Fourier transform". Support for the amendment may be found in the specification as originally filed at page 12, and also at claim 7; the recited subject matter is inherent to the transformation of a signal to a cepstrum domain. Accordingly, the amendments to claims 1 and 11 result in claims of equivalent scope as before the amendments; they merely serve to highlight subject matter already inherent in the claims before the amendment. Thus, the amendments are not limiting amendments. Accordingly, Applicant respectfully requests the Examiner withdraw all outstanding rejections.

REJECTION UNDER 35 U.S.C. §102

Claims 1-5, 8, 10-12, and 15-16 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tewfik. These rejections are respectfully traversed. Independent claims 1 and 11 have been amended to more clearly distinguish the claimed invention over data embedding processes such as those disclosed by Tewfik. In particular, the audio signals are transformed to either a linear prediction domain or a cepstrum domain. Additionally, the hidden data is embedded in either a linear prediction domain or a cepstrum domain of the audio signal.

The USPTO admits that Tewfik fails to disclose the linear prediction domain. Office Action dated February 5, 2004, pp. 5-7. However, according to the USPTO, the cepstrum domain is disclosed in col. 9, lines 11-31 of Tewfik. Nowhere in this passage does it show the three operations to transform a signal to a cepstrum domain. To transform a signal to the cepstrum domain, a signal undergoes a fast Fourier transform (FFT), followed by a logarithmic operation, then an inverse FFT. Additionally, none of the figures of Tewfik disclose the spectrum pattern that is associated with the cepstrum domain.

The Examiner remarks that Applicant's arguments fail because certain limitations are not recited in the claims. Specifically, Applicant argued that Tewfik fails to show three operations required to transform a signal to a cepstrum domain. That operational sequence is that the signal undergoes a fast Fourier transform (FFT), followed by a logarithmic operation, then an inverse FFT. The Examiner remarks that such limitations are not recited in the claims. However, the Examiner fails to accord to the term "cepstrum" the meaning of the term accepted by those skilled in the art. In other words, the three

operations detailed above are inherent to transformation of a signal from a base domain to a cepstrum domain as evidenced at p. 359 of Lawrence R. Rabiner and Ronald W. Schafer, *Digital Processing of Speech Signals*, Prentice Hal, Inc., 1978, which states in relevant part:

> The term "cepstrum" was introduced by Bogert et al. [4] and has come to be accepted terminology for the inverse Fourier transform of the logarithm of the power spectrum of a signal. The term "complex cepstrum" implies that the complex logarithm is used.

A copy of the relevant portion of the text cited above is attached hereto as an Exhibit A for the Examiner's convenience. Thus, the term "cepstrum" already inherently limits the claim to inclusion of these three operations, although variations, such as a complex logarithmic operation, are obviously allowed. The fact remains that Tewfik fails to teach a signal transformation to a cepstrum domain.

Accordingly, Applicant has amended claims 1 and 11 to recite "transforming the received audio signal to one of a linear prediction residue domain and a cepstrum domain, wherein transformation of the received audio signal to the cepstrum domain includes a fast Fourier transform, followed by a logarithmic operation, and then an inverse fast Fourier transform". Support for the amendments may be found in the specification as originally filed at page 12, and also at claim 7; the recited subject matter is inherent to the transformation of a signal to a cepstrum domain. Accordingly, the amendments to claims 1 and 11 result in claims of equivalent scope as before the amendments, because they merely serve to highlight subject matter already inherent in

the claims before the amendment. Thus, the amendments are not limiting amendments.

Accordingly, withdrawal of the rejection of claims 1-5, 8, 10-12, and 15-16 under 35 U.S.C. §102(e) is respectfully requested.

REJECTION UNDER 35 U.S.C. §103

Claim 9 is rejected under 35 U.S.C. §103(a) as obvious based upon Tewfik in view of Sharma. This rejection is respectfully traversed. The USPTO has used broad conclusory statements to explain why the clauses from claims 6, and 13 are obvious based upon Tewfik in view of Sharma; the USPTO stated that:

> Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tewfik's invention such that it transforms the received audio signal to a linear prediction residue domain and embeds the hidden data in the linear prediction residue domain in order to train pattern classifiers to control distortion and ensure perceptibility.

Office Action dated February 5, 2004, pp. 5-6.

> Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tewfik's invention such that the non-base domain is selected from the group consisting of linear prediction residue and cepstrum domain, such that the transformed attacked inverse transformation signal is in the non-base domain to generate a second transformed audio signal that is in the non-base domain and such that it extracts from the embedded hidden data from the second transformed audio signal that is in the non-base domain, to obtain an audio sample for extraction of the channel characteristics or "estimate the channel" for distortion purposes.

Office Action dated February 5, 2004, pp. 6-7.

A similarly broad conclusory statement was rejected by the Board of Patent Appeals and Interferences ("the Board") in the case entitled Ex Parte Huang, No. 1997-3338, (Bd. Pat. App & Int. 1997 unpub.) In that case, the examiner stated:

> It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references' teachings as taught by Sun et al., Lee et al., and Sandhu et al. because such use of planarized plugs by CMP [chemical mechanical polishing] or etchback and the claimed deposition processes and materials are conventional and obvious as evidenced by Sun et al., Lee et al., and Sandhu et al. to enable the formation of a planarized plug for contact.

Id. In reversing the examiner's rejection of the pertinent claims, the Board, stated:

> Most if not all inventions arise from a combination of old elements. Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.

This ruling conforms to the Federal Circuit's edict that broad conclusory statements standing alone are not "evidence." In re Dembiczak, 175 F.3d 994, 1000 (Fed. Cir. 1999). Accordingly, merely reciting that an element of a claimed invention is taught by a reference does not establish a motivation to combine references. Since there is no discernible motivation for combining the Sharma with Tewfik, the rejection of the limitations in claims 6, 9, and 13 as originally filed under 35 U.S.C. §103(a) cannot stand as a matter of law.

Moreover, the Examiner remarks that Applicant's arguments fail because certain limitations are not recited in the claims. Specifically, Applicant argued that Tewfik fails to show three operations to transform a signal to a cepstrum domain. That operational sequence is that the signal undergoes a fast Fourier transform (FFT), followed by a

logarithmic operation, then an inverse FFT. The Examiner remarks that such limitations are not recited in the claims. However, the Examiner fails to accord to the term "cepstrum" the meaning of the term accepted by those skilled in the art. In other words, the three operations detailed above are inherent to transformation of a signal from a base domain to a cepstrum domain as evidenced at p. 359 of Lawrence R. Rabiner and Ronald W. Schafer, *Digital Processing of Speech Signals*, Prentice Hal, Inc., 1978, which states in relevant part:

> The term "cepstrum" was introduced by Bogert et al. [4] and has come to be accepted terminology for the inverse Fourier transform of the logarithm of the power spectrum of a signal. The term "complex cepstrum" implies that the complex logarithm is used.

A copy of the relevant portion of the text cited above is attached hereto as an Exhibit A for the Examiner's convenience. Thus, the term "cepstrum" already inherently limits the claim to inclusion of these three operations, although variations, such as a complex logarithmic operation, are obviously allowed. The fact remains that Tewfik fails to teach a signal transformation to a cepstrum domain; nor does Sharma teach the recited subject matter.

Accordingly, Applicant has amended claims 1 and 11 to recite "transforming the received audio signal to one of a linear prediction residue domain and a cepstrum domain, wherein transformation of the received audio signal to the cepstrum domain includes a fast Fourier transform, followed by a logarithmic operation, and then an inverse fast Fourier transform". Support for the amendment may be found in the specification as originally filed at page 12, and also at claim 7; the recited subject matter

is inherent to the transformation of a signal to a cepstrum domain. Thus, neither Tewfik nor Sharma teach all of the limitations of claims 9. These differences are significant.

Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of claim 9 under 35 U.S.C. § 103(a) based on its dependence from an allowable base claim.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: _Aug 24, 2004_

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